

USSR

TRUB, V. M.

UDC: 51:801

"Concerning an Approach to Semantic Analysis Using the Semantic Valency of Words"

V sb. Mash. per. i prikl. lingvist. (Machine Translation and Applied Linguistics--collection of works), vyp. 14, Moscow, 1971, pp. 71-95 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V611).

Translation: The meaning of Russian predicate words is described by means of the language of RX-codes. Each word is characterized in addition (1) by a nexus/junctive state, and (2) by "situationality". The dictionary also assigns semantic-syntactic information to the predicate word: the morphological and semantic requirements to be satisfied by the arguments of this predicate. The question of joining interpretations of n-th order predicates is considered, in particular the restoration of arguments omitted in the text. Examples of the semantic representation of sentences are analyzed. The case of the effect of negation on interpretation is considered, as well as the transformation of nexus semantic trees to junctive semantic trees. Bibliography of 12 titles. I. Mel'chuk.

1/1

- 76 -

Aerospace Medicine

USSR

UDC 576.76:576.8

VOYTOVICH, Ya. V., PONOMAREV, P. M., TRUBACHEV, I. N., GITEL'ZON, I. I.,
and TERSKOV, I. A.; Institute of Biophysics, Siberian Department, Academy
of Sciences USSR, Krasnoyarsk

"Gas and Water Balance in a Regenerative Life-Support System Using
Hydrogen-Oxidizing Bacteria"

Novosibirsk, Izvestiya Sibirsogo Otdeleniya Akademii Nauk SSSR, Seriya
Biologicheskikh Nauk, No 10 (190), 1971, pp 11-19.

Abstract: Hydrogen-oxidizing bacteria can perform 3 functions that warrant their consideration as regenerative agents in a spacecraft life-support system: (a) utilization of carbon dioxide exhaled by man, regeneration of oxygen by electrolysis of water synthesized in the course of human and bacterial oxidation, and liberation of hydrogen needed for the bacterial life processes; (b) regeneration of water from human liquid wastes; (c) regeneration of proteins in the cosmonaut's diet. This report summarizes the results of a study of the growth, gas exchange, and biochemical composition of *Hydrogenomonas eutropha* grown in a continuous flow-type culture. The data suggest that a life-support system can be based on the use of chemosynthesis of H₂ bacteria and electrolysis.
1/1

UDG 612.825.014.3

VASILEVSKIY, N. N., TRUBACHEV, V. V., SUVOROV, N. B., Institute of Experimental Medicine, Academy of Sciences USSR, Leningrad

"Changes in Cortical Unit Impulse Activity During Selective Reinforcement of Chosen Interspike Interval Range"

Kiev, Neyrofiziologiya, Vol 4, No 4, Jul/Aug 72, pp 339-348

Abstract: The effect of selective automated reinforcement of either short or long interspike intervals in the somatosensory cortex was studied in thirty six adult curarized adult rabbits. Recordings were performed extracellularly using glass microelectrodes. Reinforcement was with painful stimuli using fine bipolar microelectrodes. The stimulators were operated automatically, the criterion for discharge being that the interspike interval lie in a given range.

It was observed that when short intervals were reinforced a decrease in average firing rate and an increase in the probability of the occurrence of long intervals immediately following short ones occurred. When long intervals were reinforced the mean frequency of discharge increased and the number of long intervals decreased for one group of cortical neurons. For another group of cortical neurons though, a decrease in the number of long intervals occurred and the mean discharge frequency decreased. The reorganization of impulse activity tended to reduce the number of intervals reinforced by 1/2

USSR

VASILEVSKIY, N. N., et al., *Neyrofisiologiya*, Vol 4, No 4, Jul/Aug 72,
pp 339-348
painful stimuli.

A discussion is given of the role of temporal interaction (synchronization) of ascending activating influences and their interaction with the excitatory and inhibitory phases in reciprocally interacting neuronal populations in the reorganization of impulse activity.

2/2

USSR

VOYTSENYA, V. S., ONISHCHENKO, I. N., SAPPA, N. N., SAFRONOV, V. G., and
TRUBCHANINOV, S. A.

"Interactions of Moving Plasma with Non-Uniform Magnetic Fields"

Kiev, Fizika Plazmy i Problemy Upravlyayemogo Termoyadernogo Sinteza, No 4,
1973, pp 105 - 113

Abstract: Various types of instabilities have been detected in plasmas moving in a uniform magnetic field, and the unstable movements are apparently determined by the properties of the plasma and the conditions of its entry into an axial magnetic field, independently of the source. Systems in which the magnetic field increases with increasing radius and systems with force-line intersections (helical symmetry) restrict some of these instabilities. Experiments conducted with two configurations - a direct stellarator and a quadrupole magnetic field in combination with an axially symmetric field showed that plasma at a density of approximately 10^{13} cm^{-3} moves along force-lines, leading to a better result for the stellarator field than for the combination of an axially symmetric field and a multipole field. The stellarator field was found to reduce the non-uniformity of electric potential observed with the other field and to leave significantly less plasma close to the walls of the container.

1/1

"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002203330001-7

TITLE--TUMORS AND CYSTS IN REPTILES UNCLASSIFIED PROCESSING DATE--18SEP70
DUE TO FOWL SARCOMA VIRUS -U-
AUTHOR--(03)-VESKOVA, T.K., TRUBCHENKOVA, L.P., DUK, I.L.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY VIRUSOLOGII, 1970, NR 2, PP 217-220
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--TUMOR, REPTILE, VIRUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0737

CIRC ACCESSION NO--AP0108943

STEP NO--UR/0402/70/000/002/0217/0220

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002203330001-7"

015
CIRC ACCESSION NO--APO108943

UNCLASSIFIED

PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT WAS PREVIOUSLY SHOWN IN OUR LABORATORY THAT SOME REPTILES (ERIX TATARICUS AND ESTUDO HORSFIELDI) WERE SUSCEPTIBLE TO FOWL SARCOMA VIRUS, THE SCHMIIT-RUPPIN STRAIN. IN THIS STUDY, PATHOGENICITY OF FOWL SARCOMA VIRUS FOR REPTILES (NATRIX NATRIX, NATRIX TESSELLATA, AGAMA SANGUINOLENTA, AGAMA ERYTHROGASTRA, VARANUS GRISEUS, EUMECES SCUTATUS, EREMIAS PERSICA, EREMIAS VELOX, GYMNODACTYLUS FEOTSCHENKOVII) AND AXOLOTLES WAS INVESTIGATED. THE VIRUS HAS SHOWN TO BE ONCOGENIC NOT ONLY FOR TORTOISES AND SNAKES BUT ALSO FOR LIZARDS. INOCULATION WITH THE VIRUS OF YOUNG BOAS RESULTED IN DEVELOPMENT OF CYSTS IN THE SUBMAXILLARY AREA. SARCOMA PRODUCED BY THIS ONCOGENIC VIRUS.

UNCLASSIFIED

USSR

TRUBENOK, V. D.

UDC: 532.542

"Hydraulic Drag of a Tube With Vortex Turbulators"
Sb. nauch. tr. Kiyev. in-t inzh. grazhd. aviatsii (Collected Scientific
Works. Kiev Institute of Civil Aviation Engineers), 1971, vyp. 7, pp
106-110 (from RZh-Mekhanika, No 7, Jul 72, Abstract No 7B535)

Translation: The paper deals with the problem of determining drag in tubes with vortex turbulators. A procedure is developed for determining the resistance of fluid motion in tubes with vortex turbulators with regard to their geometric dimensions and spacing. The zones of mutual influence of the turbulators are determined as well as the conditions under which this influence must be taken into account. Data are given on the sonic effect which causes an increase in the resistance of fluid motion at certain Reynolds numbers. Author's abstract.

1/1

- 45 -

UDC 621.385.64

TRUBETSKOV, D. I., SHAREYEVSKIY, YU. P., SHEBCHIK, V. N.

"Theory of the Signal Suppression Effect in a Traveling-Wave Magnetron-Type
Tube Amplifier in the Presence of Preliminary Modulation of the Electron Flux"

Kiev, Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 1007-1014

Abstract: A theoretical analysis is presented for the process of interaction of electrons and a wave in the traveling-wave magnetron-type tube amplifier with preliminary modulation of the electron flux. The conditions were obtained under which the effect of complete or partial suppression of the output wave is observed.

The basic equations are derived which permit analysis of the processes of interaction of the preliminary modulated electron flux with the wave and a traveling-wave magnetron-type amplifier. For defined relations between the input signal and the value characterizing the preliminary modulation the effect of complete or partial suppression of the output signal is observed which is explained by the effect that the modulated electron flux at the input of the interaction space falls in an unfavorable phase of the high-frequency field. The theoretically described mechanism of suppression of the signal in the traveling wave magnetron-type tube in the presence of flux modulation in the vicinity of the gun can lead to worsening of the output characteristics of the

USSR

TRUBETSKOV, D. I., et al., Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 1007-1014

amplifier; in particular, it can be the cause of the fact that in a number of cases the traveling wave magnetron type tube amplifier does not amplify weak signals and the stable amplification is observed from some defined value of the input signal.

2/2

- 100 -

USSR

TRUBETSKOV, D. I., SHARAYEVSKIY, Yu. P.

UDC: 621.385.63

"Analogy Between Wave Processes in a Modulated Electron Flux in Crossed Fields and in a Parametric Transmission Line"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 4, Apr 72, pp 811-817

Abstract: The authors consider the possibility of establishing an analogy between the propagation of rf disturbances in an electron stream and the wave processes in a parametric transmission line. The analysis is based on examining a model of an infinitely thin stream of electrons moving between ideally conductive planes with a given steady-state velocity in crossed electric and magnetic fields. It is assumed that the beam is modulated by an rf signal at the input and that further motion takes place in a region where there are no external rf fields. The rise of rf disturbances in the beam takes place only under the effect of the rf fields of the space charge, which are calculated from the condition of cut-off of the normal component of the field strength of the space charge in the plane of the beam. Taking the resultant analogy as a basis, a theorem is found relating to kinetic power for the given electron flux.

1/1

- 111 -

USSR

UDC 621.385.6

SHEVCHIK, V.N., TRUBETSKOV, D.I.

"Analytical Methods Of Computation In Microwave Electronics"

*"Analiticheskiye metody rascheta v elektronike SVCh (cf. English above), Moscow,
"Sov. radio," 1970, 584 pp, ill. 2 r. 16 k. (from RZh--Elektronika i yeye
primeneniya, No 2, February 1971, Abstract No 2A164K)*

Translation: The book is an introduction to the analytical method of computation of the excitation of electromagnetic fields by electron streams and their amplification. In it the theory of the processes in C- and M-type devices is presented, and the special forms are considered of the interaction of electrons with microwave fields (interaction of the M-J type, electron-wave interaction, and others) as well as cyclotron parametric amplifiers, microwave photoelectron devices, devices of the MTsR type and others. Comparatively new problems of microwave electronics are considered which are not reflected in the literature: analysis of the effect of the transverse components of a high-frequency field and the transverse movements of the electrons in the process of interaction (Type O) of a beam with a wave, non-adiabatic theory of ray devices of the magnetron type, and others. Annotation.
1/1

USSR

YAVOYSKIY, V. I., SVYAZHEN, A. G., GRIGOR'YEV, N. S., LUGIM, V. P.,
KONOVALOV, I. M., TAT'YANSHCHIKOV, A. G., TRUBETSKOV, K. M., RAKOVICH, S. Z.,
and NECHAYEV, E. A.

UDC 669.046.5

"Metal Acidity in Intense Oxygen Bath Blowing"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS) (Collection of
Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys).
Izd-vo "Metallurgiya," No 61, 1970, pp 84-90

Translation of Abstract: Results are presented of an investigation on metal
heterogeneity in intense blowing. Comparable data on the average metal
acidity level in a two-bath furnace and in other steel-melting furnaces are
given. The effect of various technological factors on metal acidity in the
two-bath furnace is considered. 5 figures, 3 references.

1/1

USSR

UDC 669.183.218.5

TRUBETSKOV, K. M., TARASOV, V. M., ALYMOV, A. A., MOKRUSHIN,
K. D., TAT'YANSHCHIKOV, A. G., CHIZHOVA, V. YA., and YAKUSHIN, V.I.

"Material Balance of the Process in Dual-Bath and Open-Hearth Furnaces"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of
Works], No 75, Metallurgiya Press, 1970, pp 68-73

Translation: A method of determining the yield of usable steel and consumption
of metal charge is studied, as well as the methodology of experimental melts
with material balance. Data are presented on the consumption of iron in dual-
bath and open-hearth furnaces operating with intensive blowing of the bath with
oxygen. The yield of iron in a dual-bath furnace is 93.6%, in an open-hearth
furnace--93.5%. 2 tables; 3 biblio. refs.

1/1

"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002203330001-7

UNCLASSIFIED

PROCESSING DATE--09OCT70

TITLE--THE HEMODYNAMICS IN COUNTER PULSATION -U-

AUTHOR--(05)-CHAZOV, YE.I., BUGOSLOVSKIY, V.A., MAZAYEV, V.P., RUDA, M.YA.,
TRUBETSKOI, A.V.

COUNTRY OF INFO--USSR

SOURCE--EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTEZOLOGIYA, 1970, NR 2, PP
23-30

DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEART RATE, BLOOD PRESSURE, HEMODYNAMICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0642

FIRE ACCESSION NO--AP0108853

STEP NO--UR/0481/70/000/002/0023/0030

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002203330001-7"

IRC
ACCESSION NO--APIOLO853
EXTRACT/EXTRACT--(U) GP-0- UNCLASSIFIED ABSTRACT. UNDER THE INFLUENCE OF COUNTER PULSATION THE HEART RATE DROPS SLIGHTLY, THE MAXIMAL AND MEAN SYSTOLIC ARTERIAL PRESSURE DECLINES AND MAXIMAL DIASTOLIC ARTERIAL PRESSURE HAS LESS INCREASES. THE RISE OF THE MEAN DIASTOLIC ARTERIAL PRESSURE WAS LESS MARKED BUT WAS STATISTICALLY SIGNIFICANT. THERE WAS AN ESSENTIAL DROP OF THE TERMINAL DIASTOLIC ARTERIAL PRESSURE AND NO CHANGES OF THE MEAN ARTERIAL PRESSURE. INCREASE OF THE CARDIAC OUTPUT AND ACCELERATION OF THE CIRCULATION RATE WERE INSIGNIFICANT. THE EXTERNAL WORK OF THE LEFT VENTRICLE AGAINST THE BACKGROUND OF COUNTER PULSATION COMPRISED ONLY 84PERCENT FROM THE INITIAL VALUE. THE TIME CONTRACTION INDEX DECREASED BY 24PERCENT. THE GENERAL PERIPHERAL RESISTANCE AGAINST THE BACKGROUND OF ASSISTED PERFUSION MADERATELY DECLINED. THE AUTHORS SHOW THAT A NUMBER OF GENERALLY ACCEPTED INDICES COULD NOT ADEQUATELY REFLECT THE FUNCTIONAL STATE OF THE HEART DURING COUNTER PULSATION. A REGULARITY HAS NOTED THAT THE INFLUENCE OF PERFUSION ON ALL HEMODYNAMIC INDICES BECOME MORE PRONOUNCED SOME TIME AFTER THE BEGINNING OF PERFUSION.
FACILITY: INSTITUT KARDIOLOGII IM. A. L. MYASNIKOVA AMN SSSR, MOSCOW.

PROCESSING DATE--09OCT70

UNCLASSIFIED

So: JPRS 54019
9 Sep 91

LEVEL, STRUCTURE, AND DISTINCTIVE FEATURES OF CITIES
DIFFERENT TYPES OF CITIES
UNC: 362.11(47-21)

Article by Ye.A. Lopatin¹, V.V. All-Public Health Organization², Yu.I. Bakharev³, V.V. Bulygina⁴, T.S. Beljakova⁵, N.T. Trubilin⁶, All-Union Scientific Research Institute of Sanitary Engineering⁷, Kurskaya Oblast Health Department⁸, Institute of Social Hygiene⁹
Russian, No 7, 1971, submitted 16 February 1971, pp 18-25.

In spite of the knowledge accumulated by Soviet public health in the area of planning and developing norms for medical care in the life of patients and the requirements of such requirements referable to emergency hospitals, still the beds allocated for development and improvement of such requirements for emergency hospitals of the network. Of special interest is the structure of the network and structure of emergency hospitals founded on the basis of Decree No 517 dated 5 July 1968 "Measures for Further Improvement of the CPSU and USSR Council of Ministers, "On Science in the Nation," as well as integration of medical and specialized hospitals, as reflected in Order No 603 dated 6 August 1968, issued by the USSR Minister of Health.

In resolving planning and organizational problems pertaining to emergency hospitalization of patients include data on emergency hospitalization only referable to surgical emergencies whereas a considerable place is occupied by emergency hospitalization of non-surgical, non-infectious, non-neurological, infections, and other patients.

For the purpose of substantiating the structure of the beds allocated with the oblast and public health departments of the All-Union Scientific Research Institute of the beds allocated with the oblast and public health departments of Rostovskaya, Ulyanovskaya, Jointly Institute of Rostovskaya, and Volgogradskaya oblasts and the Ministry of Health of Rostovskaya, Kurukaya, nature of emergency hospital care to determine the level, scope, and

KRUSILIN, N. T.

Health

37835 55477

DOC. 616-0022 (47-21)

CORRELATION BETWEEN OVERALL HOSPITALIZATION AND THAT PERTAINING TO EMERGENCIES
IN DIFFERENT TYPES OF CITIES
Article by N. T. KRUSILIN, All-Union Scientific Research Institute of Social
Hygiene and Public Health Organization, Trent M. Semashko, Minister of Social
Protection of the Russian SFSR, Moscow, December 1954, pp. 1-11, 12-13, 14-15, 16-17, 18-19, 20-21, 22-23, 24-25, 26-27, 28-29, 30-31, 32-33, 34-35, 36-37, 38-39, 40-41, 42-43, 44-45, 46-47, 48-49, 50-51, 52-53, 54-55, 56-57, 58-59, 60-61, 62-63, 64-65, 66-67, 68-69, 70-71, 72.

In order to determine the people's need for hospital care related to emergencies and develop norms for availability of specialized beds for such hospitalization, it is important to know not only the level of medical needs, but much more related to sex and age of the patient, class of disease, type of city and hospital between the two, as interdistrict functions.

Different types of cities were used as bases in this investigation.

Rostov-na-Donu is an oblast center; its city is concentrated highly population of the city rendered to the entire oblast and 1,641,500 population of the oblast; the oblast and 1,641,500 population in rural regions.

Volgograd is a city under oblast subordination, it is not a rayon center, and performs the functions of an inter-rayon medical center; it has a population of 25,150, with 76,000 gravitating toward it.

Mil'kovo is a city under oblast subordination, rayon center; it has a population of an inter-rayon medical center, without a central rayon hospital; municipal institutions perform extensively a gravitational toward this city.

Sil'sk is a city under oblast subordination, rayon hospital in which the population of 16,200; 170,000 extensively; the city has a population of outlying districts is concentrated in these cities, and primary records are set up well. In Rostov-na-Donu there

N. T.
 So: JPR5 55015
 25 JAN 72

DISTINCTIONS IN LEVEL AND STRUCTURE OF HOSPITAL CARE FOR RURAL PATIENTS IN DIFFERENT TYPES OF CITIES

[Article by Ye.A. Leont'eva, N.V. Peresetskina, V.M. Shipova, N.T. Trubilina, L.K. Zelenina, I.P. Tikhonova, A.K. Karpov, V.P. Sazonov, Z.P. Starostenko, V.I. Kolomin, L.K. Hygiene and Public Health Organization, All-Union Scientific Research Institute of Social Hygiene and Public Health, and Kurskaya Oblast' Organizational Board N.A. Semashko, Research Institute of Social Hygiene and Public Health, departments: Moscow, Rostovskaya, Leningrad, Kirovskaya, and Kurskaya oblastes; Russian, No 12, 1971, submitted 24 March 1971, pp 16-21]

Urban therapeutic institutions play an important role in rendering qualified and particularly specialized care for the rural population.

It is a known fact that the volume of medical care rendered to the rural population by urban institutions is increasing annually, however, to date this is not taken into consideration in planning.

In addition, there are still insufficient urban public health care services offered to rural residents demand for specialized investigations to substantiate different stages of organization of hospital and extramural care at

The absence of differentiated standards of medical care makes it imperative to pursue research to special forms of the demands of the rural population with regard to different forms of therapeutic and prophylactic care at different levels and distinctions of the demand of different types of citizens.

For this purpose, the All-Union Scientific Research Institute of Social Hygiene and Public Health Organization, jointly with the Vologodskaya Oblast' Organizational Board N.A. Semashko, conducted a study of the levels and structure of hospital, polyclinic, and visiting consultation services offered to rural residents in the different cities.

In this article we submit the results of a study of the level and structure of hospital care rendered to the rural population in the level and structure of hospital care rendered to the rural population in different types of other bases in Rostovskaya, Ul'yannovskaya, and Kurskaya oblastes; data pertaining to

USSR

UDC 621.791.669.018.8

TRUBILKO, V. I., Engineer, SAVCHENKOV, V. A., Candidate of Technical Sciences, and GUREVICH, S. M., Doctor of Technical Sciences
"Corrosion Resistance of Weld Joints of the Bimetal Titanium-Steel"
Kiev, Avtomaticheskaya Svarka, No 12 (249), Dec 73, pp 66-67

Abstract: The corrosion resistance of joints of the bimetal titanium-steel has been tested at the Khar'kov By-Product Coke Plant. The bimetal with sublayer was produced by rolling in vacuum at 1000 degrees C and 20-percent rolling reduction. Vanadium was used as the sublayer. Investigations showed that the corrosion resistance of joints made from the bimetal titanium-steel and from titanium is practically the same. Parts made from this bimetal in 1968 are still functioning. In corrosion resistance this bimetal surpasses Kh18N9T steel by 20 times and can be successfully used for the manufacture of equipment operating in aggressive media instead of titanium and stainless steel. The article contains 1 figure which shows welded parts made of the bimetal titanium-steel and 1 bibliographic reference.
1/1

USSR

UDC 621.791.011:669.14:62-761

TRUBILKO, V. I., Engineer, SAVCHENKOV, V. A., Candidate of Engineering Sciences, SOTNIK, I. S., and TERTYSHNAYA, N. K., Engineers, Ukrainian Scientific Research Institute of Metals

"Effect of Protective Coatings on the Properties of Weld Joints"
Moscow, Svarochnoye Proizvodstvo, No 1, Jan 73, pp 25-26

Abstract: Three types of primer paints (GF-570, GF-570RK, and FL-03K) were investigated to determine the effect of coating type and thickness on stability of arc burning, seam formation, welding mode, and weld joint properties as well as determination of the sanitary and hygienic conditions of the welding process. Tests were made using St. 3sp steel, 1.0 mm thick, with the following chemical composition: 0.19% C, 0.52% Mn, 0.21% Si, 0.018% S, and 0.011% P. Results of the tests showed that use of the above-mentioned primer paints, with a thickness of 15-25 microns, provides satisfactory weld joint properties when welding with standard modes. The seam metal had a ductility equal to that of the base metal. Increasing coating thickness leads to deterioration of the seam formation and development of pores. Strength is increased by means of slowing the welding speed.

USSR

TRUBILKO, V. I., et al., Svarochnoye Proizvodstvo, No 1, Jan 73, pp 25-26
FL-03K primer caused pores to form in the metal seam, and porosity could
only be eliminated by reducing the welding speed by 10-15%. Best coating
and thickness for extended protection from corrosion was a 25-micron thick-
ness of GF-570RK. One figure, 2 tables.

2/2

- 56 -

USSR

UDC 621.791:621.9-419:620.193.4

TRUBILKO, V. I., SAVCHENKOV, V. A., SOTNIK, I. S. Ukrainian Scientific Research Institute of Metallurgy, and GUREVICH, S. M., Institute of Electric Welding imeni Ye. O. Paton, Academy of Sciences UkrSSR

"Corrosion Resistance of Titanium-Steel Bimetal"

Kiev, Avtomaticheskaya Svarka, No 9, Sep 70, pp 16-18

Abstract: An investigation was made of the corrosion resistance of titanium-steel bimetal and its welded junctions in sulfuric and hydrochloric acids of various concentrations, and also in a mixture of sulfuric acid (density 1.64g/l) with calcium chlorate $\text{Ca}(\text{ClO}_4)_2$ (100-140 g/l). The preparation of samples and the experimental procedures are described. The bimetal was obtained by rolling, in a 5×10^{-2} mm Hg vacuum with 20% compression at 1000°C . The base layer was formed by 8-mm St 3 steel (GOST 380-60), the plating layer by 2-mm VTI-I (AMTU475-1-61) titanium, and the sublayer by 0.1-mm (TsMTU05-31-66) vanadium. Corrosion was determined by the loss in sample weight and evaluated with a metal resistance scale (GOST 5272-50). The corrosion rate of titanium bimetal and its welded combinations as a function of sulfuric and hydrochloric acid concentrations is presented in a graph.

1/2

USSR

TRUBILKO, V. I., et al., Avtomaticheskaya Svarka, No 9, Sep 70, pp 16-18

The results show that 1) in up to 60% H_2SO_4 and up to 30% HCl concentrations the corrosion rate of bimetal and its combinations is the same, and practically does not differ from the rate of VTII-1 titanium; 2) the corrosion disintegration of bimetal and its combination, as well as of VTII-1 titanium occurs uniformly in solutions of sulfuric and hydrochloric acids; 3) the bimetal and its combination possess a high corrosion resistance in solutions of sulfuric acid and calcium chlorate used in the production of chlorine dioxide. 3 figures, 1 table.

2/2

- 11 -

USSR

UDC 621.791.052.001.5:669-419.4:669.295+669.14

TRUBILKO, V. I., Engineer, SAVCHENKOV, V. A., Candidate of Technical Sciences, SOTNIK, I. S., Engineer, GROMOV, Ye. I., Candidate of Chemical Sciences, and VAYL, YE. I., Engineer

"Electrochemical Study of Welded Joints in Titanium-Steel Bimetal"
Moscow, Svarochnoye Proizvodstvo, No. 2, Feb 71, pp 13-15

Abstract: A study is presented of the electrochemical behavior of individual sectors in the welded joint -- the seam metal, near-seam zone, and base bimetal. Comparison of the maximum values of anode current of polarization curves made in 37% hydrochloric and 77% sulfuric acid and in an aqueous solution of ammonium chloride indicates that the process of corrosion occurs more rapidly in hydrochloric acid, somewhat more slowly in 77% sulfuric acid. The corrosion resistance of the specimens studied (titanium-steel produced by rolling in a vacuum of $5 \cdot 10^{-5}$ mm Hg at 1000°C with 20% compression) in ammonium chloride was high. The same types of polarization curves were produced in all the corrosive media studied. The metal of the seam and the zone near the seam have more positive electrode potential than the bimetal in the initial state in the acids.

1/1

USSR

UDC 669.295.018.9(088.8)

TURKINA, A. N., ODOYEVSKIY, L. S., KHAZANOVA, T. P., KARSANOV, G. V.,
ANOSHKIN, N. F., TSISTYAKOV, Ye. P., PAVLOV, A. G., TRUBIN, A. N., and
TETYUKHIN, V. V.

"Master Alloy for Production of High-Strength Titanium Alloys"

USSR Author's Certificate No 309061, filed 15/07/69, published 20/09/71
(Translated from Referativnyy Zhurnal Metallurgiya, No 3, 1972, Abstract
No 3G159P by G. Svodtseva)

Translation: A master alloy for the production of high-strength Ti alloys, containing Mo, V, and Al. To increase the quality of the ingots produced, the alloy includes Cr and Fe with the following relationships of components (in %): Mo 32-34, V 32-34, Al 18-22, Cr 6-8, Fe 5-7. The master alloy can be produced either by direct smelting of the metals in an open induction furnace or by an aluminothermal method in a furnace.

1/1

USSR

TRUBIN, V. A., YUN, G. N.

UDC: 51

"Synthesis of an Airline Network in the Process of Choosing
the Optimum Type of Passenger Aircraft"

Upravlyayushchiye sistemy i mashiny, 1972, No 1, pp 55-59
(from RZh-Kibernetika, No 5, May 73, abstract No 5V725 by
the authors)

Translation: The paper deals with the multiple-extremum
problem of choosing a network of airlines which minimize
overall transportation and operating expenses assuming pre-
determined passenger traffic. An algorithm is proposed
for solving the problem.

1/1

USSR

UDC 512.25/.26+519.3:530.115

LAVRINENKO, Ye. P., TRUBIN, V. A.

"One Problem of Operative Control of Air Traffic"

Mat. Metody Issled. i Optimiz. Sistem. Vyp. 5 [Mathematical Methods of Investigation and Optimization of Systems, No 5 -- Collection of Works], Kiev, 1970, pp 3-12, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V502).

Translation: The problem of composition of a graph of utilization of a runway is reduced to a problem of minimization of

$$\sum_{i=1}^n c_i |t_i - T_{ii}|$$

under the conditions $t_{i+1} - t_i \geq \tau_i$, $a_i \leq t_i \leq b_i$. Certain properties of the solutions of this problem are established, on the basis of which an effective specialized algorithm is constructed.

USSR

UDC 51

TRUBIN, V. A.

"Solution of the Problem of Optimal Halting"

V sb. Mat. metody issled. i optimiz. sistem (Mathematical Methods of Investigation and Optimization of Systems -- collection of works), Kiev, 1971, pp 189-193 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V505)

No abstract

1/1

USSR

TRUBIN, V. A.

UDC 51

"Solving the problem of Distribution on a Network in Tree Form"

V sb. Mat. Metody issled. i optimiz. sistem (Mathematical Methods of Investigating an Optimizing System -- collection of works), Kiev, 1971, pp 3-10 (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V484)

Translation: This paper is directly adjacent to the article by the author published previously (RZh-Matematika, 1969, 2V416). A study was made of the problem of distribution on a network in the form of a tree; the expenditures on creating the service station at the apex are constant (that is, they do not depend on the number of requests serviced by this station). The distance from the apex i to j is the sum of the length of the arcs entering into the path $\{i, j\}$ which is uniquely defined on the tree. The mathematical model of the problem has the form:

$$\sum_{i=1}^n \sum_{j=1}^n c_{ij} x_{ij} + \sum_{i=1}^n b_i x_i + \min, \quad (1)$$

$$\sum_{i=1}^n x_{ij} = 1, \quad j = 1, \dots, n, \quad (2)$$

1/5

USSR

TRUBIN, V. A., Mat. metody issled. i optimiz. sistem, Kiev, 1971, pp 3-10

$$0 \leq x_{ij} \leq x_i, i = 1, \dots, n, j = 1, \dots, n, \quad (3)$$

$$x_i = 0 \text{ or } 1 \quad (4)$$

Here $c_{ij} = r_{ij} a_j$; $r_{ij} \geq 0$ is the distance from the apex i to the apex j (in the general case $r_{ij} \neq r_{ji}$); $a_j \geq 0$ is the weight of the apex j ; $b_i \geq 0$ is the cost of the location of the servicing station at the apex i ; n is the number of apexes of the tree.

An interpretation of the problem (1)-(4) is presented in terms of placement of the repair stations on a railroad network. Simultaneously with problem (1)-(4) a study was made of the problem which is reciprocal to (1)-(3):

$$\sum_{j=1}^n u_j \rightarrow \max, \quad (5)$$

$$\sum_{j=1}^n v_{ij} \leq b_i, i = 1, \dots, n, \quad (6)$$

$$2/5 \quad u_j \leq c_{ij} + v_{ij}, i, j = 1, \dots, n, \quad (7)$$

USSR

TRUBIN, V. A., Mat. metody issled. i optimiz. sistem, Kiev, 1971, pp 3-10

$$v_{ij} \geq 0, \quad i, j = 1, \dots, n. \quad (8)$$

For each column j , the variables v_{ij} are renumbered in increasing order c_{ij} :
 $0 \leq c_{i_1j} \leq c_{i_2j} \leq \dots \leq c_{i_nj}, \quad j = 1, \dots, n.$ In the mentioned paper by the author the following was proved:

Theorem 1. There is an optimal solution of problem (5)-(8) which satisfies the conditions

$$v_{i_sj} \geq v_{i_{s+1}j}, \quad c_{i_sj} + v_{i_sj} \leq c_{i_{s+1}j} + v_{i_{s+1}j}, \quad s = 1, \dots, n-1,$$

$$j = 1, \dots, n,$$

hence it follows, in particular, that in the optimal solution it is possible to consider $u_j = c_{i_1j} + v_{i_kj}$. Therefore, having replaced the variables $v_{i_sj} = \sum_{k=s}^n w_{ikj}, \quad s, j = 1, \dots, n$, it is possible to rewrite problem (5)-(8) in the following form:

$$3/5 \quad \sum_{s=1}^n \sum_{j=1}^n w_{i_sj} + \max, \quad (9)$$

USSR

TRUBIN, V. A., Mat. metody issled. i optimiz. sistem, Kiev, 1971, pp 3-10

$$\sum_{k=s_1}^n \sum_{j=1}^n w_{ikj} \leq b_i, \quad i = 1, \dots, n, \quad (10)$$

$$0 \leq w_{isj} \leq \lambda_{isj} = c_{i,s+1,j} - c_{i,s,j}, \quad s, j = 1, \dots, n. \quad (11)$$

Here s is the number s in the row i and the column j ; $c_{i,n+1,j} = \infty$. In solving the problem (9)-(11), it is possible to use an effective algorithm based on theorem 1.

Theorem 2. There is an optimal solution of the problem (9)-(11) for which if $w_{ikj} > 0$, then $w_{ifj} = \lambda_{ifj}$ for all $1 \leq f < k$, $j = 1, \dots, n$.

Considering this theorem, the solution of problem (9)-(11) is reduced to solving the sequence of problems of smaller dimensions in each of which all the variables w_{ij} except one are fixed for the given j .

For proof of the existence of an optimal integral plan of the problem (1)-(3) it is sufficient to show that the matrix of the problem (9)-(11) is unimodular in each step of the sequence. This fact can be well-founded using theorem 3 (the matrix corresponding to the nonzero variables in the optimal plan for the problem in each step is unimodular). It is noted that the condition
4/5

USSR

TRUBIN, V. A., Mat. metody issled. i optimiz. sistem, Kiev, 1971, pp 3-10

matrix (10) is not, generally speaking, unimodular (but it must be unimodular if the tree of the problem is a chain). Examples are presented which show that theorem 3 is not generalized either to the case where the distance between the points is calculated by a euclidian metric space or to the case where it is calculated by means of the shortest paths on the graph.

5/5

TRUBIN, V.I.

S P K S 57268

6-72

A2

VI-5. RELATIVE GROWTH RATE OF THE <111> AND <100> PYRAMIDS AND DEFECT DISTRIBUTION IN NATURAL DIAMONDS

Article by V. I. Trubin, V. V. Baskrovskiy, Tavitskiy; Kovalevskiy, I.I. Smirnov
Po-Petrogradskaya, Rosta i Sintez Poluprovodnikov; Kotel'kov, I. P. Minusinsk, Russia.
11-17 June, 1972, p. 76]

The relative growth rate of <100> pyramids was determined by the thickness and the relative growth rate of <100> pyramids were determined by the thickness of the simultaneous growth layers. Diamonds were photographed in the light of their luminescence or the transmitted monochromatic light. The relatives were photoelectrically measured and the transmission absorption centers was determined. It was established that with an increase in luminescence in this pyramid increases almost linearly. The growth rate of blue absorption centers was determined. It was established that with an increase in (G) is equal to 0.9. For centers of yellow and green luminescence, the correlation factor relation was established between their density in the <100> pyramids, the inverse growth rate of the pyramids, $r = 0.88$. The link with the impurity and the impurity responsible for blue luminescence $K \approx 1$; and for an impurity responsible for green or yellow luminescence $K \approx 1$. K is the distribution factor or responsible distribution law. It follows that the natural diamonds of cubic habit with the defect smaller superstructure than diamond (and of them) grow with relatively the different pyramids <111> and <100> at the same time of their growth rates of a result of the differences in temperature and defect density. This is explained by difference, face roughness, and also as a result of different defectiveness at different distribution of nitrogen centers of absorption (N-N). The investigation of the distribution between the density distribution of the centers and the centers of blue luminescence (N-N) in the <111> pyramids. The centers and the centers of

"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002203330001-7

UNCLASSIFIED
PROCESSING DATE--04DEC70
MECHANICAL PROPERTIES OF STRUCTURAL STEELS AFTER OVERHEATING -U-
AUTHOR-(02)-TRUBIN, V.N., CHERNIKHOVA, I.YA.

COUNTRY OF INFO--USSR

SOURCE--METALLOVEDENIE I TERM. OBRABOT. METALLOV, 1970, (3), 34-37
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CHROMIUM NICKEL STEEL, IMPACT STRENGTH, METAL TEXTURE,
STRUCTURAL STEEL, GRAIN SIZE, BIBLIOGRAPHY, CHROMIUM STEEL, CHROMIUM
MANGANESE STEEL, METAL BRITTLENESS, COLD SHORT, METAL MECHANICAL
PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0919

CIRC ACCESSION NO--AP0133008

STEP NO--UR/0129/70/000/003/0034/0037

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002203330001-7"

U21
CIRC ACCESSION NO--AP0133008

UNCLASSIFIED

PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0 ABSTRACT. THE EFFECT OF OVERHEATING ON THE MECHANICAL PROPERTIES OF CR, CR-MN, AND CR-NI STEELS WAS STUDIED. FOR ALL TYPES OF STEEL STUDIED THE IMPACT STRENGTH AND THE POSITION OF THE COLD BRITTLENESS THRESHOLD DEPENDED SOLELY ON THE ACTUAL GRAIN SIZE; OVERHEATING LED TO THE DEVELOPMENT OF A SPECIAL TEXTURE, OR SUPERIMPOSED STRUCTURE, BUT THIS HAD NO SERIOUS EFFECT ON COLD SHORTNESS OR IMPACT STRENGTH.

UNCLASSIFIED

USSR

UDC 620.17:669.14.018.298:669.151.83

TRUBIN, V. N. and CHERNIKHOVA, I. YA. (Scientific Research, Planning and Design
Institute of Mining and Concentrating Machinery)

"Mechanical Properties of Construction Steels after Overheating"
Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 3, 1970, pp 34-37

Abstract: The effect of overheating on the mechanical properties of 38KhS, 38KhGN,
and 34KhN3M construction steels was investigated. The overheating conditions were
1295°C for 2 hr, 1300°C for 1.5 hr, and 1315°C for 2 hr for the three steels,
respectively, followed by oil hardening at 880, 880, and 850°C, and annealing at
various temperatures in air or water. The results of resilience tests are pre-
sented in graphs for overheated and regular steels. It is shown that the ductil-
ity and the position of the cold brittleness threshold depend on the real grain
size, and that the overheating texture does not affect these characteristics. 1
figure, 2 tables, 8 references.

1/1

USSR

UDC 616-036.882-08-07:616.008.921.1-074

TRUBINA, I. Ye., Laboratory of Experimental Physiology of Resuscitation of
the Organism (V. A. Negovskiy, Corresponding Member of the Academy of
Medical Sciences, USSR, Head), Academy of Medical Sciences USSR, Moscow

"Acid-Base Balance in Resuscitation With the Aid of Extracorporeal Circu-
lation After Prolonged Clinical Death"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3,
1971, pp 57-59

Abstract: Acid-base balance indicators were studied in experiments on dogs revived with the aid of artificial circulation after clinical death due to acute blood loss. Of eight unanesthetized dogs in series one, two survived after 10-minute clinical death. Of eight dogs in series two, given 14.9 milligrams-per-kilogram Nembutal one to 1-1/2 hours before blood loss, seven survived after 10-minute clinical death, and four out of nine -- after 12-minute clinical death. In series three, two of five dogs given 22.4 milligrams-per-kilogram Nembutal 2-9 minutes before onset of dying survived. Revival was accomplished with AIK-RP64 apparatus filled with blood with NaHCO₃ (0.2 gram per kilogram of weight) added, and artificial respiration in oxygen. The least shift in gaseous composition of the 1/2

USSR.

TRUBINA, I. Ye., Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya,
No 3, 1971, pp 57-59

blood and metabolic component of the acid-base balance, as well as the greatest survival rate and most rapid normalization of suboxidized metabolites was noted in dogs of series two, which survived a 10-minute clinical death, apparently due to superficial anesthesia followed by moderate hypothermia. Most marked arterial hypocapnia with greatest disturbance of hemodynamics occurred in unanesthetized animals. Some animals in series three developed gaseous acidosis during the postrevival period apparently due to deep inhibition of compensatory breathing mechanisms with increased hypoxia.

2/2

- 67 -

USSR

UDC 616-036.832-08-616-002-036.1

SQEOLEVA, V. I., TOLOVA, S. V., GURVICH, N. L., SIDORA, A. K., TRUBINA, I. Ye.,
and MUTUSKINA, Ye. A., Laboratory of Experimental Physiology for Reanimation,
Academy of Medical Sciences USSR, Moscow

"Characteristics of the Course of the Restoration Period in Animals Revived by
Extracorporeal Circulation After Clinical Death"
Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 14, No 5,

Sep/Oct 70, pp 24-27

Abstract: Forty-three adult dogs which had sustained clinical death from profuse hemorrhage for 7 to 12 min. were revived by use of extracorporeal artificial circulation equipment. In nonanesthetized dogs, corneal reflexes were suppressed for only 10 min. after the onset of high-volume rate perfusion (not less than 100 mg/kg/min). The electrical activity of the cerebral cortex was reduced at first. For most anesthetized animals, revival could be accomplished even 12 min. after clinical death. It was concluded that artificial blood circulation equipment could be used to revive nonanesthetized dogs within 8 min. of clinical death from hemorrhage, in some cases even within 10 min. Anesthetized animals could be revived after 10 min. of clinical death, a fact which was attributed to moderate

1/2

USSR

SOBOLEVA, V. I., et al, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya,
Vol 14, No 5, Sep/Oct 70, pp 24-27

hypothermia accompanying the anesthesia. The body temperature of the anesthetized dogs dropped to a mean of 35°C before bloodletting and to 31.9°C before artificial blood circulation was stopped. Hypoxia during the resuscitation period was much less pronounced in these dogs.

2/2

USSR

UDC 619.616.575.858.1

SHIDKOV, S. A., SERGEYEV, V. A., TRUBITSYN, B. I., and URVANTSEV, N. N.,
All Union Scientific Research Institute of Veterinary Virology and Micro-
biology

"Characteristics of a Cold Variant of Foot-and-Mouth Disease Virus (Type O)"
Moscow, Veterinariya, No 10, Oct 71, pp 42-44

Abstract: An earlier study showed that passaging foot-and-mouth disease virus (type O, strain Or-13) in a culture of calf kidney cells at 24°C resulted in its attenuation. Further study revealed that elevation of the temperature led to restoration of the lost properties, the sequence and intensity of which were determined by the temperature. Virus cultured at 30°C became pathogenic for mice and mildly pathogenic for guinea pigs and swine. It had no effect on cattle, could not be transmitted to calves by contact, and produced virtually no immunity. Virus cultured at 34°C became more pathogenic for guinea pigs and swine and caused atypical lesions on the oral mucosa, could be transmitted to cattle by contact but not to swine, and produced marked immunity in cattle and sheep. Virus grown at 37°C produced even stronger immunity and could be transmitted by contact
1/2

USSR

SHIDKOV, S. A., et al, Veterinariya, No 10, Oct 71, pp 42-44
to swine from vaccinated swine and calves. Virus grown at 39°C was able
to replicate. The resistance of the cold variant to heating was not af-
fected by elevation of temperature.

2/2

- 104 -

USSR

TRUBITSYN, L. M.

"Adjustment of Images Recognized"

Vychsil. Tekhn. v Mashinostr. Nauch.-Tekhn. Sb. [Computer Technology and Machine Building. Scientific and Technical Collection], 1972, Sent., pp 135-139 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, 1973, Abstract No 4V705, by the author).

Translation: A version is studied of an algorithm for elimination of random breaks in patterns, based on approximation of the patterns by sections of straight lines. Switching functions are produced, realizing the algorithm by calculation of the values of each element of the matrix separately.

1/1

"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002203330001-7

TITLE--PLASTIC REPAIR OF THE INGUINAL CANAL IN HERNIA -U-
UNCLASSIFIED
PROCESSING DATE--04DEC70

AUTHOR--TRUBITSYN, M.A.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 6, PP 125-129

DATE PUBLISHED----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PLASTIC SURGERY, ANATOMY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO---FD70/605005/E01 STEP NO--UR/0531/70/000/006/0125/0129

CIRC ACCESSION NO--AP0139722

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002203330001-7"

ALL
CIRC ACCESSION NO--AP0139722 UNCLASSIFIED PROCESSING DATE--04DEC70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR DESCRIBES THE TECHNIQUE OF INVESTIGATION OF THE INGUINAL CANAL IN INGUINAL HERNIOTOMY IN 100 PATIENTS, AGES OVER 20 YEARS. A STUDY OF THE SURGICAL ANATOMY OF THE INGUINAL REGION HAS SHOWN THAT NOT ONLY IN DIRECT BUT ALSO IN A SIGNIFICANT NUMBER OF PATIENTS WITH OBLIQUE INGUINAL HERNIA THIS REGION MARKEDLY ALTERS ITS STRUCTURE, TO A GREATER DEGREE NOT IN THE ANTERIOR, APONEUROSES WAS DEVELOPED POORLY ONLY IN 27.4PERCENT OF PATIENTS, HIGH INGUINAL SPACES OF TRIANGULAR AND OVAL FORM WERE ENCOUNTERED IN 85.4PERCENT, WEAKENING OF THE TRANSVERSE FASCIA, IN 65.4PERCENT, MARKED DILATION OF THE DEEP RING OF THE INGUINAL CANAL, IN 68PERCENT. PROCEEDING FROM THE SURGICAL ANATOMY OF THE INGUINAL CANAL THE AUTHOR PROPOSES TO INDIVIDUALIZE THE METHODS OF PLASTIC REPAIR. SPECIAL ATTENTION IS DRAWN TO PLASTIC REPAIR OF THE POSTERIOR WALL OF THE INGUINAL CANAL AS THE INITIAL AREA OF HERNIA FORMATION. THE DEEP INGUINAL RING AND TRANSVERSE FASCIA IN ITS WEAKENING SHOULD BE SUTURED. ADDITIONAL ALLOPLASTIC REINFORCEMENT OF THE WALLS IS EXPEDIENT IN SIGNIFICANT CHANGES OF ALL WALLS OF THE INGUINAL CANAL. FACILITY: KAFEDRA OPERATIVNOY KHIRURGIIS TOPOGRAFICHESKOGO ANATOMNEY VORONEZHSKOGO MEDITSINSKOGO INSTITUTA I TSENTRAL'NAYA RAYONNAYA BOL'NNTSA OL'KHOVATSKOGO RAYONA VORONEZHSKOY OBLASTI.

UNCLASSIFIED

U20
TITLE--WEAR RESISTANT GRINDING COMPONENTS OF CENTER RUN COAL GRINDING
UNCLASSIFIED
PROCESSING DATE--09OCT70
MILLS -U-
AUTHOR-(05)-TSYPIN, I.U., TRUBITSYN, N.A., KRYUCHKOV, P.P., TIMOFEEV,
V.L., ZOLOCHEVSKIY, G.L.
COUNTRY OF INFO--USSR

SOURCE--LITEINOE PROIZVOD. 1970, 2, 11-13
DATE PUBLISHED--70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--COAL, GRINDING MACHINE, WEAR RESISTANT FERROUS METAL, ALLOY
DESIGNATION, HARD ALLOY, CAST IRON, ALLOY COMPOSITION, CHROMIUM
CONTAINING ALLOY, MANGANESE CONTAINING ALLOY, MOLYBDENUM CONTAINING
ALLOY/(U)HARD CAST IRON, (U)300KH13GBM CHROMIUM MANGANESE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1378

CIRC ACCESSION NO--APO116827

UNCLASSIFIED

STEP NU--UR/0128/70/002/000/0011/0013

CIRC ACCESSION NO--AP0116827
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--09OCT70

ABSTRACT. THE FOLLOWING CAST IRONS WERE TESTED: NIKHARD, 300KH13G3M, AND CHILLED IRON WITH GLOBULAR GRAPHITE. THE BEST WEAR RESISTANCE WAS SHOWN BY THE NIKHARD AND 300KH13G3M; CHEM. COMPNS. OF THESE ALLOYS AS USED EXPTLY. AT 4 INDUSTRIAL COAL GRINDING MILLS ARE GIVEN AS FOLLOWS: (SHOWN ON MICROFICHE). THE WEAR RESISTANCE AFTER 3500 HR OF WORK OF 300KH13G3M WAS A FACTOR OF 1.6 HIGHER THAN THAT OF THE NIKHARD CAST IRON. A DECARBURIZED LAYER ON THE SURFACE OF 300KH13G3M (DUE TO AIR HARDENING) INITIALLY DECREASED THE WEAR.

UNCLASSIFIED

USSR

PAKHOMOV, P. P., TRUBITSYN, B. P.

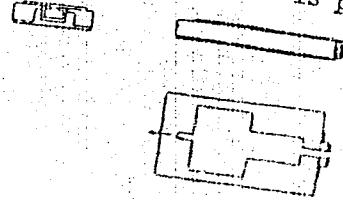
"A Microwave Delay Line"

UDC 621.372.82

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 4, Feb 72, Author's Certificate No 326673, Division II, filed 9 Jan 70,
published 19 Jan 72, p 202

Translation: This Author's Certificate introduces a microwave delay line which contains a section of strip transmission line, a piezoelectric transducer, a single-crystal acoustic line, and activating and matching elements. As a distinguishing feature of the patent, losses are reduced and the manufacturing technique is simplified by applying the piezoelectric transducer to part of the grounding plate which is placed across the end face of the single-crystal acoustic line, which acts at the same time as the substrate for the asymmetric transmission line. The exciter section of the conducting strip of the transmission line is placed across the free surface of the transducer.

1/1



- 58 -

USSR

UDC 612.58

ISAAKYAN, L. A., MASLENNIKOVA, L. S., OL'NYANSKAYA, R. P., and TRUBITSYNA, G. A.
Group for the Study of the Physiology of Bioadaptation, Institute of Physiology imeni I. P. Pavlov, USSR Academy of Sciences, Leningrad

"On Certain Changes in Oxygen Metabolism in the Animal Organism and Tissues
During Cold Adaptation"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 59,
No 11, Nov 73. pp 1.742-1.749

Abstract: White rats and golden hamsters were subjected to intermittent adaptation to 4°C. Control animals were maintained at 22°C. In vivo and in vitro studies demonstrated that oxygen consumption was greater in cold-adapted animals, as well as in their organs and tissues. However, increased oxygen consumption was not accompanied by increased contractile function of the muscles. Muscle bioelectric activity in cold-adapted animals was lower than in control animals. The calorogenic effect of norepinephrine was greater and longer in adapted animals than in controls; a possible explanation of this effect was dissociation of oxidative phosphorylation in the adapted animals.

1/1

- 63 -

USSR

UDC 621.395.385.4

LEBEDEV, G. V., TRUBITSYNA, G. V., KHAYTMAN, Ye. N., Barnaul Radio Plant
"A Multibeam Radio Channel Simulator"

Moscow, Otkrytiva, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 5, Feb 72, Author's Certificate No 327622, Division E, filed 18 Mar 70,
published 26 Jan 72, pp 174-175

Translation: This Author's Certificate introduces: 1. A multibeam radio channel simulator containing n unit-beam channels, each of which is made in the form of a parallel circuit made up of a regular-component subchannel consisting of a regular-component level regulator, a subchannel for the random cophase component consisting of an amplitude modulator for the co-phase component and a random-process generator, and a quadrature-component subchannel consisting of a phase shifter, random process generator and quadrature-component amplitude modulator. The simulator also contains a unit-beam channel adder and an output converter. As a distinguishing feature of the patent, the device is designed for simulating a wide range of values of ionospheric turbidity up to the limits observed in actual radio channels. The signal spectrum generator in the low-frequency region

1/2

CSR

LEBEDEV, G. V. et al., USSR Author's Certificate No 327622

is connected through the taps of low-frequency delay lines to the frequency converter. The output of the frequency converter is connected to the input of the regular-component subchannel. 2. A modification of this simulator distinguished by the fact that provision is made for simulating Doppler shifts as each of the beams is formed. For this purpose, a multiplier is connected between the adder and the beam attenuator.

2/2

- 79 -

1/2 014

TITLE--RADICAL EMULSION POLYMERIZATION IN THE PRESENCE OF A BENZOYL
PEROXIDE AMINATED POLYSTYRENE BINARY INITIATING SYSTEM IN AN ALKALINE
AUTHOR--(03)--TRUBITSYNA, S.N., RUMETSOVA, KH.K., ASKAROV, M.A.

COUNTRY OF INFO--USSR

SOURCE--UZB. KHM. ZH. 1970, 14(2), 67-70

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--EMULSION POLYMERIZATION, BENZOYL PEROXIDE, POLYSTYRENE RESIN,
METHYL METHACRYLATE, POLYMETHYLMETHACRYLATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0922

CIRC ACCESSION NO--AP0137950

STEP NO--UR/0291/70/014/002/0067/0070

UNCLASSIFIED

2/2. 014

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--APO137950

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYSTYRENE (I) OF MOL. WT. 14.5 TIMES 10 RP1ME3 AMINATED WITH PYRIDINE WAS USED AS AN EMULSIFIER IN THE POLYMN., IN AN ALK. MEDIUM, OF ME METHACRYLATE AT 200DEGREES IN THE PRESENCE OF BZ SUB2 O SUB2. THE SYSTEM BZ SUB2 O SUB2 AMINATED I WAS AN ACTIVE INITIATOR; IN THE ALK. MEDIUM THE CARBINOL BASE OF AMINATED I WAS FORMED WHICH REACTED WITH BZ AUB2 O SUB2 GIVING BENZOATE RADICALS INITIATING THE POLYMN. SYNDIOTACTIC STRUCTURE OF OBTAINED POLY(ME METHACRYLATE) WAS CONFIRMED BY IR ANAL.; ITS GLASS TRANSITION TEM. WAS 120DEGREES AND M.P. 240DEGREES. FACILITY: TASHKENT. POLITEKH. INST., TASHKENT, USSR.

UNCLASSIFIED

Pharmacology and Toxicology

USSR

UDC 615.31:547.751].012.1

GLUXHKOV, R. G., TRIBITSYNA, T. K., MAGIDSON, O. Yu., and MASHKOVSKIY, N. D.,
All Union Scientific Research Institute of Pharmaceutical Chemistry imeni S.
Ordzhonikidze

"Investigation of Lactams. XX. Synthesis and Pharmaceutical Activity of
Azepino-[3,4-b]indole Derivatives"

Moscow, Khimiko-farmatsevticheskiy zhurnal, Vol 4, No 10, Oct 70, pp 9-13

Abstract: Indole analogs of α,β -pentamethylenetetrazole and α -methylcaprolactim, and a number of 1,2- and 10- substituted azepino[3,4-b]indoles were synthesized from unsubstituted and 7-methoxy substituted 1-oxo-1H,2,3,4,5-tetrahydroazepino[3,4-b]-indoles. It was found that the principal pharmaceutical property of the synthesized azepino[3,4-b]indole derivatives is their tranquilizing effect on the central nervous system accompanied by muscular relaxation and hypothermia. The most active compounds in this respect were 1-alkoxy-3H- and 4,5-dihydroazepino[3,4-b]indoles, and 1-ethoxy-10-methyl-3H,4,5-dihydroazepino[3,4-b]indole. These compounds produce a cataleptic state in rats and mice, and a further increase in dosage has a sleep-inducing effect.

1/1

USSR

UDC: 539.4.01

KUZNETSOV, A. P., TRUBIY, V. A.

"Study of the Dispersion of Creep Curves"

Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 5, Sep-Oct 72, pp 188-192

Abstract: This article presents the results of studies of the dispersion of 293 creep curves produced on specimens of D16T alloy under identical test conditions: temperature 207°C, stress 18 kg/mm². The reasons for the dispersion are analyzed and a formula is produced which can describe creep curves as random functions of time. Threaded specimens were turned out of 18 mm bars as delivered. The gauge portion was 100 mm long, 8 mm in diameter; test time was 20 hours. Most of the variation in creep results from variations in the internal structure of the material of the specimens and the uncertainty in the degree of eccentricity of application of the load.

1/1

172 017

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--DETERMINATION OF LIQUID HOLDUP ON SIEVE PLATES WITH PROTECTED
OVERFLOW -U-

AUTHOR--(02)--PAVLOV, V.O., TRUBKIN, V.YE.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(3), 217-19

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--MASS TRANSFER, CHEMICAL PLANT EQUIPMENT, TWO PHASE FLOW,
HYDRAULIC RESISTANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1495

STEP NO--UR/0064/70/046/003/0217/0219

CIRC ACCESSION NO--AP0118482

UNCLASSIFIED

2/2 017

CIRC ACCESSION NO--AP0118482

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HEIGHT H SUBC OF LIQ. ON SIEVE PLATES WITH PROTECTED OVERFLOU (IN MASS TRANSFER COLUMNS) INCREASED WITH INCREASING L-G RATIO (WHERE L AND G ARE THE FLOW RATE OF LIQ. AND GAS IN THE COLUMN, IN M PRIME3-HR), WITH INCREASING HEIGHT OF THE OVERFLOW BAFFLE (H SUB8) AND WITH DECREASING GAP OF THE OVERFLOW OPENING (S); FOR INSTANCE, IN THE CASE OF WATER AIR FLOWS, THE VALUE OF H SUBC RANGED FROM 11 TO 82 MM FOR (L-G) TIMES 10 PRIME NEGATIVE4 BETWEEN 10 AND 70, H SUBB BETWEEN 20 AND 80 MM, AND S BETWEEN 15 AND 35 MM. EMPIRICAL EQUATIONS FOR THE MEAN GAS CONTENT OF THE LIQ. IN THE SLIT AND FOR THE RESISTANCE COEFF. OF THE SLIT ARE PRESENTED.

UNCLASSIFIED

USSR

UDC 621.793.3:669(088.8)

TRUBMAN, S. V., Chernovits Plant of Light Machinery

"A Process for the Chemical Plating of Metallic Objects"

Author's Certificate No 346401, filed 24 Sep 70, published 15 Aug 72 (from Referativnyy Zhurnal -- Khimiya, No 8(II), 1973, Abstract No 8L301P)

Translation: A process is patented for the chemical plating of metallic objects in a solution containing CuSO_4 , Na_3PO_4 , oxalic acid and ammonia. It is improved in that in order to increase the bonding between the plating and the base, sodium sulfate, acetic acid, and isoamyl alcohol are added to the solution resulting in the following concentration of components: CuSO_4 , 35-50 g/liter; Na_3PO_4 , 30-60 g/liter; oxalic acid, 50-90 g/liter; ammonia, 45-90 ml/liter of 25%; Na_2SO_4 , 20-30 g/liter; acetic acid, 12-20 ml/liter; and isoamyl alcohol, 1-1.5 ml/liter. The process was carried out at 20-30° and at a pH of 3.0-3.5. The solution was prepared in the following manner: The required amount of CuSO_4 was dissolved in 1/2 to 2/3 the required volume of water. While the mixture was being stirred, the necessary amount of ammonia was added and the mixture was heated to 50-60°. After the complete dissolution of the precipitate in the solution, Na_3PO_4 were added and again heated until 1/2

USSR

TRUBMAN, S. V., Author; s Certificate No 346401, filed 24 Sep 70, published
15 Aug 72

the precipitates dissolved completely. The oxalic acid was dissolved in a separate container at a temperature of 85-90°. After this both solutions were poured together transferred and filtered. To the filtrate was added the required amount of isoamyl alcohol and acetic acid and the remaining volume of water. The pH of the solution was adjusted to the required value using phosphoric acid.

2/2

- 18 -

1/2 032

TITLE--USE OF AN UNSTABLE PLASMA BEAM FOR HEATING IONS IN A TRAP WITH
MAGNETIC PLUGS -U-
UNCLASSIFIED

PROCESSING DATE--30OCT70

AUTHOR-(03)-NEZLIN, M.V., TAKTAKISHVILI, M.I., TRUBNIKOV, A.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. TEKH. FIZ. 1970, 40(2), 392-5

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PLASMA BEAM, ION TRAP, PLASMA INSTABILITY, ELECTRIC FIELD,
STRONG MAGNETIC FIELD, ION ACCELERATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1085

CIRC ACCESSION NO--AP0107594

STEP NO--UR/0057/70/040/002/0392/0395

UNCLASSIFIED

2/2 032

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0107594

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PREVIOUSLY DESCRIBED METHOD (CA 63:6428E) WAS REINVESTIGATED. THE NARROW ELEC. FIELD RANGE OF EFFECTIVENESS (2-3 KOE) IN THE EARLIER METHOD IS BROADENED BY INTRODUCTION OF AN ISOLATED GRID INTO THE PLASMA BEAM. THE GRID INCREASES THE EFFECTIVENESS OF THE ION ACCELERATION IN THE RANGE OF HIGH MAGNETIC FIELDS (7-8 KOE) BY A POWER OF TEN.

UNCLASSIFIED

TRUBNIKOV, B. A.

RMN / / R-160 / 5 - APR-73

Dec 72

98

X. ELECTRICAL DISCHARGES

Trubnikov, B. A. Nature of ball lightning. DAN
SSSR, v. 253, no. 6, 1972, 1276-1283.

In an attempt to clarify the origin of the alleged 10 - 20 cm radio waves in lightning discharges, the author introduces modifications to the Dawson-Jones model of ball lightning. (Pure and Appl. Geophysics, v. 75, 247, 1969). The principal modification assumes that the cavity which is hypothetically formed in the channel of ordinary straight lightning, is filled with radiation of characteristic wavelength in the millimeter or sub-millimeter range. This assumption is based on the so-called "ionosphere effect" on radio wave formation and propagation in the lightning channel. The plasma frequency of lightning to a value corresponding to submillimeter wavelengths in vacuum. The waves of a frequency $\omega < \omega_0$ from the channel cannot penetrate the plasma and are therefore reflected. Powerful radio waves of a frequency $\omega < \omega_0$ consequently accumulate progressively in the space surrounded by the plasma sheath and propagate along the lightning channel. The proposed model of ball lightning formation (FIG. 1) comprises three successive stages. In the first stage,

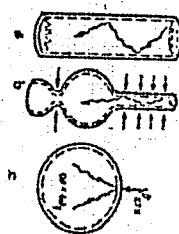


FIG. 1. Ball lightning formation model

USSR

UDC: 621.371:551.510.52

ARAKELYAN, K. A., TRUBNIKOV, R. N.

"Some Problems of the Formation of Radiation in the Submillimeter Wave Band in the Earth's Atmosphere"

V sb. Radioelektronika optich. diapazona (Radio Electronics in the Optical Band--collection of works), Moscow, 1970(1971), pp 73-86 (from RZh-Radiotekhnika, No 3, Mar 72, Abstract No 3A225)

Translation: The paper discusses general problems of spectroscopy in the submillimeter wave band, and the nature of absorption of various spectral components of emission during passage through the atmosphere. Six tables, bibliography of 45 titles. N. S.

1/1

USSR

UDC: 621.371:538.569.4

ARAKELYAN, K. A., TRUBNIKOV, R. N.

"Absorption of Radio Waves in the Submillimeter Band by Atmospheric Water Vapor"

V sb. Radioelektronika optich. diapazona (Radio Electronics in the Optical Band--collection of works), Moscow, 1970(1971), pp 86-91 (from RZh-Radiotekhnika, No 3, Mar 72, Abstract No 3A219)

Translation: Experimental data on absorption of submillimeter waves in the atmosphere are analyzed. It is noted that the absorption spectrum contains strong bands caused by rotation of water vapor molecules, and transparency windows. It is shown how the absorption spectra of submillimeter waves can be used for determining the condition of various layers of the atmosphere. Four tables, bibliography of sixteen titles. N. S.

1/1

USSR

UDC 539.188

GABOVICH, M. D., KUZNETSOV, V. S., SOLOSHENKO, I. A., TRUBNIKOV, G. I.,
Scientific Research Institute of Electrophysical Equipment imeni D. V.
Yefremov, Leningrad; Institute of Physics, Ukrainian SSR Academy of Sci-
ences, Kiev

"Investigation of Neutralization of an Intense Ion Beam by a Numerical
Method"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, Vol 43, No 10, Oct 73, pp 2178-2181

Abstract: Numerical solution of a system of equations of a self-consistent field is used to study neutralization of the space charge of an ion beam by introducing electrodes. The changes in configurations of transverse phase volumes of the electron and ion components lengthwise of the beam are considered. The values found for the radial potential differential in a neutralized beam are compared with the results of approximate calculation. The experimentally observed increase of electron temperature in the beam is confirmed and explained.

1/1

Theoretical Physics

USSR

TROITSKIY, V. Ye., TRUBNIKOV, S. V., SHIROKOV, Yu. M.

"The Connection Between Deuteron Form Factors and the Physical S Matrix, Part 2"

Moscow, Teoreticheskaya i Matematicheskaya Fizika, Vol 10, No 2,
Feb 72, pp 209-214

Abstract: An expression is obtained in this theoretical paper for the electromagnetic form factors of the matrix element $\langle p'n|j_\mu(x)|$ through the Jost relativistic matrix for neutron-proton dispersion and through the single-particle form factors of neutron and proton. The relationships obtained relate the values of the form factors for the two-particle matrix element outside the mass surface with the Jost relativistic matrix. The first part of the article, published in the same journal named above (10, 45, 1972) yielded the relativistic parametrization of the matrix element for the electromagnetic current of the neutron-proton system and the two-particle form factors of the free current expressed through the single-particle factors. The present section of the article sets up the equations for finding the interaction form L/2

USSR

TROIITSKIY, V. Ye. et al, Teoreticheskaya i Matematicheskaya Fizika,
Vol 10, No 2, Feb 72, pp 209-214

factors, in which the S matrix, in the form of the ratio of the two matrices, is principally used in a sense similar to the Jost matrices. The form factors are found by solving these equations and are expressed through integrals over the physical n-p dispersion region as obtained in the first part of the article. The results obtained by the article as a whole are also discussed. The authors are connected with the Moscow State University and the V. A. Steklov Mathematical Institute of the USSR Academy of Sciences.

2/2

- 130 -

TRUBNIKOV, V.P.

16 November 1973
JPRS 60160
(16)

DISSOCIATING GASES AS COOLANTS AND WORKING SUBSTANCES AT ATOMIC POWER PLANTS

B

Translation of Russian-language materials presented at the Third All-Union Conference by A. K. Krasin, et al., on Dissociating Working Substances, Gazz kak Toplivo-strel' i Rabochie Tela, Energodizelskikh Ustanovok, 1973, Minsk, UDZ-67-11-67-97, signed to press 12 April 1973.

CONTENTS

PAGE	PREFACE.....
1	DISSOCIATING GASES AS COOLANTS.....
1	(A. K. Krasin).....
4	DEVELOPMENT AND OPTIMIZATION OF PARAMETERS OF ATOMIC POWER PLANTS WITH HIGH-POWER FAST REACTORS USING DISSOCIATING GASES AS COOLANTS.....
11	(N. V. Rastorgnoevo).....
11	CORROSION OF MATERIALS IN DINITROGEN TETRAOXIDE.....
25	(M. M. Slobodin).....
43	SOME RESULTS OF TECHNOLOGICAL AND ECONOMIC OPTIMIZATION OF THE THERMODYNAMIC PARAMETERS OF ATOMIC POWER PLANTS WITH FAST REACTORS WITH DISSOCIATING N ₂ O ₄ COOLANT (A. K. Krasin, et al.).....
50	COMPLEX TECHNOLOGICAL AND ECONOMIC INVESTIGATIONS OF CIRCUITS AND PARAMETERS OF ATOMIC POWER PLANTS WITH A DISSOCIATING WORKING SUBSTANCE (L. S. Popov, N. N. Starostenko).....
61	COMPARATIVE ANALYSIS OF N ₂ O ₄ , He AND CO ₂ GAS AND GAS-LIQUID CYCLES (V. P. Rubanov, et al.).....

- a - (I - USSR - L)

CONTENTS (Continued)

JPS
6.C.7.C
(D)

	Page
The Influence of Radiation on the Working Capacity of Stainless Steels (I. S. Maslennik, E. S. Nekrasova).....	162
Principles of Dinitrogen Tetroxide Technology (V. I. Trubnikov).....	
Effectiveness of Purification of Dissociating N_2O Coolant of Mechanical Impurities With a Porous Fluorinated Plastic Filter (G. A. Rizn, Z. T. Artyohenk).....	169
Experience in the Operation of Piping Working in a Loop With Dissociating N_2O Coolant in a Gas-Liquid Cycle (V. D. Pribrazhnyi, L. I. Astroshenok).....	174
Experimental Study of Some Technological Questions in the Application of H_3^+ Coolant in a Nuclear Reactor (V. A. Sokolchik, et al.).....	181
Zonal Profiling of Energy Release in a Nuclear Reactor (A. I. Kukhayer, P. P. Silko).....	189
Boron Distinctive Features in Planning Protection Against the Radiation of Gas-Cooled (N_2O) Fast Reactors (Yu. K. Shevchenko, et al.).....	196
Development of Experimental Studies in Fast Reactor Physics at the Institute of Nuclear Power of the Belarusian Academy of Sciences (V. A. Naumenko, et al.).....	208
Table of Contents.....	212
	216

TRUBNIKOVA, R.S.

2/2

30 JUL 71

95

200: CUMULATIVE

D-1

Psychology

GOLOVINA, A. A., and CHUMICOVA, R. I. Institute of General and Pedagogical Psychologists, Academy of Psychological Sciences of the USSR, Moscow
"On Correlations Between the Productivity of Memory and the Strength of the Nervous System"

Moscow, Voprosy Psichologii, No. 2, Mar/Apr. 71, pp 122-128

Abstract: As an indicator of nervous system strength, the authors use the amplitude of rhythmic or light stimuli. The greater the amplitude, the better the memory. Memory induction was determined by giving the subjects two measures of a variety of material to memorize, and testing them different after 24 hours, and after one week. In recalling symbols, those subjects with stronger nervous systems (higher amplitudes) had a definite advantage, although the correlation was only significant at the 0.01 or 0.05 levels for the recall of large volumes of material. In the examination of physics there was no such positive advantage, but there is some indication of physics there was no such weaker nervous systems. The correlations for symbols for those with 120 readings from the right hemisphere at 4, 6, and 8 cycles per second, while those for verbal notes 1/2 were with 100 hemispheric readings at 4 cycles per second only.

(10: Foreign Press Digest)

USSR

USSR

USSR

GOLOVINA, A. A., et al. Voprosy Psichologii, No. 2, Mar/Apr. 71, pp 122-128
In general the authors conclude that correlations do exist between memorization and nervous system strength, but that the induction reaction is complex and indirect indicator of this strength.

USSR

UDC 632.954:635.342

NALETOV, B. G., PETROV, N. P., Scientific Research Institute of Vegetable Farming, ~~TRUBNIKOVA, T. I.~~, TIMOFEEVA, T. A., KIRYUKHINA, N. N., Saratov Scientific Research Institute of Farm Hygiene

"Application of Semeron in Cabbage Fields"

Moscow, Khimiya v sel'skom Khozyaystva, No 8, 1972, pp 39-41

Abstract: Optimal doses of semeron for soddy alluvial soils of different mechanical composition were established, and the economic advantage of applying semeron to white cabbage was demonstrated. In medium-weedy cabbage fields of medium loamy and light loamy soils in flood plain areas, the optimal dosage of semeron is 0.5 kg/hectare. In heavy, very weedy ground the dosage should be increased to 0.7 kg/hectare. Chemical analysis of the cabbage demonstrated that semeron does not lower the quality or the food value. A study was also made of the hygienic conditions of labor of workers applying the herbicide and the effect of the compound on the organism of the workers. No deviations from the norm in the functional state of the organism was discovered for a semeron concentration in the respiratory zone of 0.003-0.42 mg/m³, on the clothes, 0.001-0.33 and on the skin, 0.001-0.073 mg/dm².
1/1

1/2 026

TITLE--UNCLASSIFIED
ACID OXIDATION OF CYCLOHEXANOL -U-
AUTHOR--TRUBNIKOVA, V.
M.S., ROSTINA, V.N., PREOBRAZHENSKIY, V.A., GOLDMAN, A.M., FURMAN,
COUNTRY OF INFO--USSR

PROCESSING DATE--11SEP70

SOURCE--Khim. Prom. (Moscow) 1970, 46(1), 12-14
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITRIC ACID, OXIDATION, CYCLOHEXANOL, CARBOXYL RADICAL,
CHEMICAL REACTION RATE, ACTIVATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY RFEL/FRAME--1985/1453

CIRC ACCESSION NO--AP0101539

STEP NO--UR/0064/70/046/001/0012/0014

UNCLASSIFIED

2/2 026

CIRC ACCESSION NO--AP0101539

UNCLASSIFIED

PROCESSING DATE--11SEP70.

ABSTRACT/EXTRACT--(II) GP-0- ABSTRACT. A CYCLOHEXANOL (I) 57PERCENT HNO₃ SUB3 MIXT. (MOLE RATIO 1:7) WAS AGITATED (BY BUBBLING N₂) 1 TO 30 MIN AT 35DEGREES; THE CONCN. OF CARBOXYNITROLIC ACID (HO SUB2 C (CH SUB2) SUB4 C (:NOH) NO SUB2 (III)) IN THE MIXT. INCREASED FROM 0.48 M AFTER 1.9 MIN TO 0.685 M AFTER 10.0 MIN, AND DECREASED SLIGHTLY THEREAFTER. THE MAX. YIELD (60PERCENT) OF III WAS OBTAINED WHEN THE REACTION WAS CARRIED OUT AT 45 TO 55DEGREES. THE RATE CONST. OF THE REACTION (K) WAS 0.5 MIN TO 3 WHEN THE TEMP. INCREASED FROM 5 TO 55DEGREES; LOG K INCREASED LINEARLY FROM NEGATIVE4 ACTIVATION WAS 25.4 KCAL. PER MOLE.

UNCLASSIFIED

USSR

UDC 621.316.722.1 (088.8)

KISEL'MAN, M.A., TRUBUNSKIY, A.V.

"Regulating Stage Of Multigrid Tube Stabilizer"

USSR Author's Certificate No 285996, filed 14 July 69, published 9 June 71
(from RZh:Elektronika i yeye primeneniye, No 2, Feb 72, Abstract No 2B456P)

Translation: The thyristor included in the screen grid circuit of a regulator stage of the stabilizer is controlled by a signal created at a resistor connected into the cathode circuit of the tube. When the tube current does not exceed a nominal magnitude, the thyristor blocks. When this current increases to an inadmissible value, the thyristor unblocks which is accompanied by a decrease to zero of the voltage at the screen grid and production of voltage at the resistor connected to the cathode circuit of the thyristor. The voltage drop at this resistor is applied to the control grid of the tube, which assures blocking of the tube without use of a supplementary power source. 1 ill. V.Sh.

1/1

- 113 -

1/2 019

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--TURBULENT EXCHANGE AND WASH OUT BY MEASUREMENT OF NATURAL
RADIOACTIVITY IN SURFACE AIR -U-

AUTHOR--(04)-BAKULIN, V.N., SENKO, E.E., STARIKOV, B.G., TRUFAKIN, V.A.

COUNTRY OF INFO--USSR

SOURCE--J. GEOPHYS. RES. 1970, 75(18), 3669-74

DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, ATMOSPHERIC SCIENCES

TOPIC TAGS--ATMOSPHERIC RADIOACTIVITY, RADON, ATMOSPHERIC CIRCULATION,
AEROSOL, DIFFUSION COEFFICIENT, NATURAL RADIOACTIVITY, RADIOACTIVE DECAY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1060

CIRC ACCESSION NO--AP0136480

STEP NO--US/0000/70/075/018/3669/3674

UNCLASSIFIED

2/2 019

CIRC ACCESSION NO--APO136480 UNCLASSIFIED PROCESSING DATE--27NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BASED ON A COMPARISON OF METHODS
OF MEASURING THE DEGREE OF DISEQUIL. BETWEEN THE SHORT LIVED DECAY
PRODUCTS OF RN, AN IMPROVED AND SIMPLIFIED METHOD IS PROPOSED FOR
GENERAL USE. IN ACCORDANCE WITH THEORETICAL CONSIDERATIONS, THE
EXISTENCE OF A LINEAR DEPENDENCE BETWEEN RAA-RAB (PRIME218 PO-PRIME214
P8) AND RAB-RAC (PRIME214 PB-PRIME214 BI) CONCN. RATIOS IN THE ATM. IS
ESTABLISHED, PERMITTING DETN. OF THE ATM. CONCNS. OF RN, RAA, RAB, AND
RAC FROM 2 POINTS ON THE RADIOACTIVITY DECAY CURVE FOR AEROSIL SAMPLES
COLLECTED ON A FILTER. AS A RULE, 2 MAX. IN THE DIURNAL VARIATION OF
DISEQUIL. BETWEEN RN AND ITS DAUGHTER PRODUCTS HAVE BEEN OBSERVED. FROM
THE DIFFERENCES IN THIS VARIATION AT ALTITUDES OF 1, 11, AND 20 M, AN
ATTEMPT IS MADE TO EXPLAIN THE MECHANISM OF CONVECTIVE AND DYNAMIC
COMPONENTS OF TURBULENT EXCHANGE NEAR THE GROUND. FROM THE DIURNAL
VARIATIONS OF RN AND THORON (PRIME220 RN) CONCNS. AT 1 AND 5 M AND THEIR
DIURNAL CHANGE IN THE TURBULENT DIFFUSION COEFF. IN THE SURFACE LAYER IS
COMPUTED AND COMPARED WITH THAT FROM METEOROL. PARAMETERS. THE VELOCITY
OF WASH OUT OF THE TROPOSPHERE IS ESTD. FROM RN-RAD CONCN. RATIO
VARIATIONS AVERAGED FOR 1 DAY INTERVALS.
TEACHER INST., KIROV, USSR. FACILITY: STATE

UNCLASSIFIED

Neutron Physics

TRUFANOV, A.M.

Quoted (public)

NUCLEAR TEMPERATURE AND INELASTIC STRAY NEUTRON SPECTRA

[Article by O. A. Sal'nikov, G. N. Lovrikova, G. V. Kotelnikova, N. I. Fomicov, A. M. Trufanov; Bull. Inst. Tsentr. po Nefedov. Chernigov, Russia, No. 6, 1968, Atomefiz., pp. 189-211]

Data on nuclear temperatures found as a result of analysis of the energy spectra of inelastic stray neutrons with initial energy 14.4 MeV were published in the fifth edition of "Atomizdat," Moscow, 1968. The spectra were measured for five scatter angles in cylindrical geometry above 300 kev. Therefore the experimental data with an energy threshold of 300 kev. The segments of the spectrum from 300 kev and below was obtained by extrapolating the experimental spectrum from 300 kev and below was spectra do not contain the contribution from elastic stray neutrons. However, the correction factor for attenuation and multiple scattering of neutrons in the specimen was not introduced in the initial experimental data for obtaining nuclear temperatures, since the computation of this factor involved considerable difficulties.

There is now a program for calculating the correction factor for multiple scattering and the correction factor for attenuation of the neutron flux in inelastic stray neutron spectra by the Monte-Carlo method, developed by V. I. Popov and G. V. Kotelnikova.

The examined correction factor influences experimental results, specifically the shape of a spectrum. With consideration of attenuation of the neutron flux in the specimen and repeated scattering, the energy spectrum of inelastic stray neutrons becomes more firm and the temperatures are higher.

Presented below are the nuclear temperatures determined with consideration of the correction factor for attenuation and repeated scattering of neutrons in the specimen, nuclear level density parameter, and also the energy spectra of inelastic stray neutrons for iron, copper and niobium.

JPRS-54305 22 OCT 71

USSR

UDC: 51

SYROV, Yu. P., CHURKVEIDZE, Sh. S., ARBATSKIY, G. M., TRUFANOV, V. V.

"On Optimizing Intersectoral and Interregional Communications in Planning
the Development of a United National Economic System"

Sb. tr. In-t mat. Sib. otd. AN SSSR (Collected Works. Institute of Mathematics, Siberian Department, Academy of Sciences of the USSR), 1971, vyp. 2(19), pp 138-168 (from RZh-Kibernetika, No 4, Apr 72, Abstract No 4V501)

[no abstract]

1/1

USSR

TRUFANOVA, L. V.

UDC 51:330.115

"Optimal Assignment of Routes to Motor Pools By Computer"

Mat. Metody Issled. I Optimiz. Sistem. Vyp. 3, [Mathematical Methods of Studying and Optimizing Systems, No. 3--Collection of Works], Kiev, 1970, pp 96-101, (Translated from Referativnyy Zhurnal Kibernetika, No 5, 1971, Abstract No. SV593 by I. Romanovskiy).

Translation: The transport problem is stated in which the "points of production" are motor pools, the "consumers" car routes.

1/1

- 44 -

USSR

UDC: 621.791.008.1

TRUFYAKOV, V. I.

"Work of Commission XIII on Fatigue Testing Discussed at the Twenty-Third Congress of the International Welding Institute"

Kiev, Avtomaticheskaya Svarka, No 11, Nov 70, pp-77-78

Abstract: An observation is made of similarities between results cited in Document XIII-565-69 bis (XIII-593-70) on "Fatigue Tests of Electroslag Welded Joints" (presented by Harrison, Great Britain) and those obtained earlier at the Institute of Electric Welding imeni Ya. O. Paton and TsNIITMASH. With respect to fatigue resistance, butt joints with stress relaxation are equivalent to the parent metal. Electroslag welded butt joints with stress relaxation have a higher fatigue resistance than those welded by other methods. The same author in Document XIII-566-69 "Analysis of Fatigue Damage of Cross Joints" proposes the use of the criterion of mechanics of failure for evaluating the fatigue resistance of

1/2

USSR

TRUFYAKOV, V. I., Avtomaticheskaya Svarka, No 11, Nov 70, pp 77-78
fillet welds as well as their optimum dimensions and depth of penetration.

As noted in Document XIII-589-70 (S. V. Serensen, V. I. Trufyakov and A. V. Babayev), in considering the use of the mechanics of failure it is also necessary to consider the effect of residual stresses in the zone of the defect. The Commission recommended that a further study of propositions brought up in this document be made by a special working group.

2/2

USSR

ALFEROV, Zh. I., ANDREYEV, V. M., GARBUZOV, D. Z., and TRUKAN,
M. K. UDC: 621.382.2

"Radiation Recombination in Epitaxial Compensated Gallium Arsenide"
Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 2015-
2026

Abstract: The results of the experiments described in this paper were presented to the All-Union Conference on Recombination Radiation and Spontaneous Light Sources (Theses, 3, 1971, Baku). The purpose of the experiments was to investigate radiation recombination in epitaxial GaAs p-n structures doped with donor and acceptor materials. Light excitation was used for studying the spectral characteristics of the compensated material luminescence, and the kinetics of the radiating junctions was investigated under pulse excitation. The specimens were grown by the liquid method in an open system on n-GaAs substrates, with the solution cooled from 825 to 810°C, and were doped with germanium and tellurium to provide acceptors and donors respectively. A table of the specimens and their characteristics is given together with oscillograms of the light pulses for some of the structures, and curves of the

USSR

ALFEROV, Zh. I., et al, *Fizika i tekhnika poluprovodnikov*, No 10,
1972, pp 2015-2026 UDC: 621.382.2

quantitative results are plotted. The authors thank A. N. Yermakova for her assistance in preparing the specimens, B. I. Shklovskiy, I. S. Shlimak, and A. L. Efros for their consultations, and V. M. Tuchkevich for his interest in the work.

2/2

Acc. No.

NP0054338

Abstracting Service:
CHEMICAL ABST. 4/7b

Ref. Code:

4R 0093

~ 116783y Superadditivity of developing and activating action
on black and white films of 3-aminopyrazoline derivatives.
Abritalin, V. L.; Zhurin, R. B.; Trukanaitis, A.; Ivina, V. N.;
Shchul'gina, O. E. (Vses. Nauch.-Issled. Inst. Khim. Fotogr.
Prom., Moscow, USSR). *Zh. Nauch. Prikl. Fotogr. Kinetogr.*
1970, 15(1), 26-30 (Russ.). The most common black-and-white
developers and high-sensitivity isopanchromatic film were used.
1-(4-Aminophenyl)-3-aminopyrazoline (I) in several black-and-
white developers revealed no superadditive action with Metol,
Amidol, Phenidone, methylphenidone and 1-(n-tolyl)-3-pyr-
gallol a marked superadditivity effect was obsd. Introduction
of electroneg. sulfo- and aceto-groups into the mol. of 3-amino-
pyrazoline resulted in a sharp decrease in superadditivity. I
exerted higher activating effect on hydroquinones. Electropos.
groups introduced into the Ph group of 3-aminopyrazoline pro-
moted the activating action. F. Vesely

REEL/FRAME
198314824
PN

ACC. NO.
AP045007

Abstracting Service: 5/70
INTERNAT. AEROSPACE ABST.

Ref. Code:
UR0109

A70-22417 # Two-stage detection in the presence of signal fluctuations which are partly dependent from stage to stage (Dvukhetapnoe obonaruzhenie pri chastichno zavisimikh ot etapa k etapu fluktuatsiiakh signala). A. A. Trukhachev. Radiotekhnika i Elektronika, vol. 15, Jan. 1970, p. 101-103. In Russian.

Study of the effectiveness of two-stage detection in the presence of signal fluctuations which cannot be regarded as either totally dependent or totally independent. It is shown that at large values of a certain parameter, the detection effectiveness in the presence of partly dependent stages is close to the effectiveness in the case of independent stages only at very large and rarely encountered values of the detection probability.

A.B.K.

MT

1/1

4

REEL/FRAME
19771903

USSR

UDC: 517.512

IBRAGIMOV, I. I., Academician of the Azerbaijan Academy of Sciences
and TRUKACHEV, V. N.

"An Extremal Problem in a Class of Integral Functions of Finite
Degree"

Moscow, Doklady Akademii Nauk SSSR, 1 February 1973, pp 763-770

Abstract: B_σ is a class of integral functions of finite degree $\leq \sigma$
satisfying the condition

$$\sup_{-\infty < x < +\infty} |f(x)| < +\infty,$$

and $W_\sigma^{(p)}$, $p \geq 1$, is a class of integral functions from B_σ for which

$$\|f\|_p = \left(\int_{-\infty}^{\infty} |f(x)|^p dx \right)^{1/p} < +\infty.$$

$W_\sigma^{(p)}$ is a set of functions $f(z) \in W_\sigma^{(p)}$ which are nonnegative on the
real axis and B_σ is a set of functions from B_σ monotonic for
 $1/2$

USSR

UDC: 517.512 .

IBRAGIMOV, I. I., et al, Doklady Akademii Nauk SSSR, No 4, 1973,
pp 768-770

(R) = (-∞, +∞). \tilde{B} is the totality of functions $f(z) \in B_0$,
subject to the conditions $f'(\alpha_v) = \beta_v$, $v = 1, \dots, n$; where
 $\alpha_1, \dots, \alpha_n; \beta_1, \dots, \beta_n$ are given real numbers, $\beta_i \geq 0$, $i = 1, \dots, n$.
The purpose of this paper is to find in class \tilde{B} the so-called
extremal function $f_0(z)$ which satisfies the relation

$$\|f_0\|_C = \inf_{f \in \tilde{B}_0(n)} \|f\|_C .$$

2/2

- 8 -

1/2 010
TITLE--POLAROGRAPHIC DETERMINATION OF NITRATE ION IN PHOSPHORIC ACID AND
UNCLASSIFIED PROCESSING DATE--04DEC70
ITS SALTS -U-
AUTHOR-(03)-TRUKHACHEVA, V.A., ZAKHARCHUK, N.F., YUDELEVICH, I.G.

COUNTRY OF INFO--USSR

SOURCE--IZV. SIB. OTD. AKAD. NAUK SSSR, SER. KHM. NAUK 1970, (1), 157-60
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITRATE, PHOSPHORIC ACID, POLAROGRAPHIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/1002

CIRC ACCESSION NO--AP0138030

UNCLASSIFIED

STEP NO--UR/0289/70/000/001/0157/0160

2/2 010

CIRC ACCESSION NO--AP0138030
ABSTRACT/EXTRACT--(U) GP-0- UNCLASSIFIED PROCESSING DATE--04DEC70
OF H SUB2 SO SUB4, 1 ML OF A SOLN. OF 2,6,XYLENOL IN HOZC 11.2208 G IN
100 ML), AND 3 ML H SUB2 O, AND HEATED ON THE WATER BATH FOR 15 MIN.
THE SOLN. COOLED, TRANSFERED TO THE POLAROGRAPHIC CELL, AND FREED OF O
BY N BUBBLING, AND THE CATHODIC WAVE WAS RECORDED FROM MINUS 0.3 TO
MINUS 0.7 V VS. MERCURIC SULFATE ELECTRODE. CL DOES NOT INTERFERE. THE
SENSITIVITY WAS 10 PRIME NEGATIVE 4PERCENT, THE VARIATION COEFF. WAS
LESS THAN 6PERCENT. FACILITY: INST. NEORG. KHM., NOVOSIBRISK,
USSR.

UNCLASSIFIED

"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002203330001-7

FILE—UNCLASSIFIED
TITLE—ANOMALOUS DEPENDENCE OF LIMITING CURRENT ON THE ROTATION RATE OF AN
ELECTRODE IN PT FE(CN)SUB6 PRIME4 NEGATIVE-FE(CN)SUB6 PRIME3 NEGATIVE
AUTHOR—(03)—TRUKHAN, A.M., POVAROV, YU.M., LUKOVITSEV, P.D.

COUNTRY OF INFO—USSR

SOURCE—ELEKTROKHIMIYA 1970, 6(3), 425-9

DATE PUBLISHED—70

SUBJECT AREAS—CHEMISTRY

TOPIC TAGS—PLATINUM ELECTRODE, FERRICYANIDE, LOW TEMPERATURE EFFECT,
CATHODE

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PROXY REEL/FRAME—2000/0844

CIRC ACCESSION NO—AP0124509

STEP NO—UR/0364/70/006/003/0425/0429

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002203330001-7"

UNCLASSIFIED

PROCESSING DATE—30 OCT 70

ABSTRACT/EXTRACT—(U) GP-0 UNCLASSIFIED
INVESTIGATED. THE CURVES OF THE CATHODIC LIMITING CURRENT (I_1 SUB E VS. OMEGA PRIME0.5, WHERE OMEGA IS THE ROTATION RATE OF THE ELECTRODE) WERE RECORDED FOR SOLNS. (1) OF 2 TIMES 10⁻³ PRIME3 NEGATIVE M K SUB3 FE(CN)SUB6 PLUS 0.2 M K SUB4 FE(CN)SUB6 AND (2) OF 0.2M K I PLUS 5 TIMES 10⁻³ PRIME2 NEGATIVE M I SUB2 FOR VARIOUS TEMPS. THE CURVE AT 25 DEGREES IS LINEAR AND PASSES THROUGH THE ORIGIN. THE DIFFUSION COEFFS. ARE 7.6 TIMES 10⁻³ PRIME6 NEGATIVE AND 9.5 TIMES 10⁻³ PRIME6 NEGATIVE CM PRIME2 SEC. IT DOES PASS THROUGH THE ORIGIN. THE ANODIC CURVES EXHIBIT SIMILAR CHARACTERISTICS. FOR (1) SOLNS., THE ACTIVATION ENERGY, DELTA E OF THE LIMITING CURRENT IS DEPENDENT ON OMEGA. WITH INCREASE OF OMEGA, THE VALUE OF DELTA E VARIES FROM 1.6 TO 2.3 KCAL-MOLE. FOR (2) SOLNS. AT 1-50 DEGREES, DELTA E IS 1.95 KCAL-MOL., WHILE FOR A SOLN. CONTG. 0.2M K SUB3 FE(CN)SUB6 PLUS 0.2M K SUB4 FE(CN)SUB6, DELTA E IS INDEPENDENT OF OMEGA (AT 5-50 DEGREES) AND IS 2.3-2.4 KCAL-MOL. ANOMALOUS BEHAVIOR OF I_1 SUB3 VS. OMEGA PRIME0.5 CURVES CAN BE EXPLAINED BY THE HETEROGENEITY OF THE ELECTRODE SURFACE.

FACILITY: INST. ELEKTROKHIM., MOSCOW,
USSR.

UNCLASSIFIED

UNCLASSIFIED
EFFECTS OF THE NATURE OF ELECTRODE METAL AND STATE OF THE ELECTRODE SURFACE ON THE LIMITING DIFFUSION CURRENT IN OXIDATION REDUCTION SYSTEMS
AUTHOR-(03)-POVAROV, YU.M., TRUKHAN, A.M., LUKOVSEV, P.D.

CCOUNTRY OF INFO-USSR

SOURCE-ELEKTROKHIMIYA 1970, 6141, 602-12
DATE PUBLISHED-70

SUBJECT AREAS-CHEMISTRY

TOPIC TAGS-METAL ELECTRODE, PLATINUM ELECTRODE, GOLD, PALLADIUM, IRIDIUM,
REDOX REACTION, IRON

CONTROL MARKING-NO RESTRICTIONS

DOCUMENT CLASS-UNCLASSIFIED
PROXY REEL/FRAME-2000/0686

CIRC ACCESSION NO-AP0124358

STEP NO-UR/0364/70/006/004/0602/0612

UNCLASSIFIED

2/2 014

CIRC ACCESSION NO--AP0124358

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0 ABSTRACT. AT ROTATING DISK ELECTRODES (EITHER 0.5 OR 1 MM DIAM.) OF PT, PD, IR OR AU, THE LIMITING DIFFUSION CURRENTS (I_{SUBD}) FOR THE 2 REDOX SYSTEMS, FE (CN)₆ PRIME₆ NEGATIVE-FE(CN)₆ PRIME₄ NEGATIVE AND I PRIME NEGATIVE- I_{SUB2} AT 0-50DEGREES WERE MEASURED. THE VALUES OF I_{SUBA} AT ACTIVATED ELECTRODES OF PT, PD AND AU WERE APPROX. IDENTICAL AND SHOWED A LINEAR DEPENDENCE ON THE SQUARE ROOT OF ROTATION RATE (OMEGA PRIMEONE HALF). FOR THE IR ELECTRODE WITH BOTH REDOX SYSTEMS, THE I_{SUBD} -OMEGA PRIMEONE HALF RELATION HAS NONLINEAR; INLINEARITY WERE ASSUMED, THEN THE INTERCEPT WAS NOT AT ZERO. AT THE PASSIVATED PT ELECTRODE IN THE FE REDOX SYSTEM AND AT A POISONED PD ELECTRODE, THE I_{SUBD} -OMEGA PRIMEONE HALF RELATION WAS NONLINEAR. FOR THE ACTIVATED PT, PD, AND AU ELECTRODES, THE LIMITING CURRENT ACTIVATION ENERGY (E_{SUBA}) WAS SIMILAR TO 2.3 KCAL-MOLE FOR THE FE SYSTEM AND INDEPENDENT OF THE ROTATION RATE, BUT AT THE IR ELECTRODE E_{SUBA} VARIED FROM 0.4 TO 1.6 KCAL-MOLE WHEN THE ROTATION VARIED FROM 960 TO 7200 RPM. THESE RESULTS ARE EXPLAINED ON THE BASIS OF HINDERED ELECTRON TRANSFER AT NONUNIFORM ELECTRODE SURFACES, WHICH WERE INACTIVATED BY ADSORPTION OF O OR MOLES OF ORG. OR INORG. SUBSTANCES. THE DIFFUSION COEFFS. FOR THE VARIOUS SPECIES AT 250DEGREES ARE GIVEN.

FACILITY: INST. ELEKTROKHIM., MOSCOW, USSR.

UNCLASSIFIED

USSR

Biophysics

TRUKHAN, E., Chair of Living Systems, Moscow Physicotechnical Institute
"Scientists Reply to Readers: Physics of the Living"

Moscow, Izvestiya, 5 Sep 72, p 5

Abstract: The author stresses the need to study the complete organism in order to fully understand its component organs and its individual cells. The role of the physicist in such studies, in contrast to that of the physiologist and biologist, has only recently been determined. Methods of determining the significant parts of the organism in terms of a mathematical model, the proper techniques of generalization, the acquisition of biological terminology -- all have hindered the physicist's work. But the problems to which the physicist might address himself -- hypertension, vessel spasms -- were compelling, and a group of young physicists was formed under the leadership of V. Khayutin in the Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR. Scientists have proved that control of the heart and circulatory system is in the spinal cord and that under various kinds of extreme stimulation the function of the heart and vessels can be labored. The work of Professor L. Shik in the Institute of Surgery imeni A. V. Vishnevskiy has determined the significance of internal diffusion of

12

USSR

TRUKHAN, E., Izvestiya, 5 Sep 72, p 5

gases in the lungs. This knowledge can be applied to illnesses related to such high-pressure circumstances as the ocean depths. In the Institute of Problems of Information Transmission, Academy of Sciences USSR, students are studying the means of muscular control and thereby contributing to the development of anthropomorphic mechanisms and walking devices and the algorithms for control. The work of physicists G. Komissarov and M. Ostrovskiy and their associates in the Institute of Chemical Physics of the Academy of Sciences USSR has helped determined the function of chlorophyll and is investigating mechanisms of the breakdown of water and the formation of free oxygen from it. The electrical parameters of the pigment system indicate that the green leaf and its components have semiconductor properties, which may help to understand the function of a leaf through the application of principles of physics of organic semiconductors. This group is currently attempting to produce an artificial leaf from polymer tape, a coloring agent, and water, which will produce oxygen with the application of light. Studies of the physical nature of vision, though complex, indicate that the hope of employing the retina of the eye as a highly sensitive photoreceiver is not so illusory. Living systems and physics can offer each other new principles to clear up each other's "Blank spots." Such a collaboration is characteristic of our times.

2/2

- 9 -

USSR

UDC 543.42

TRUKHANENKO, E. M., PANFILOVA, L. I., FAVORIN, V. N.

"Spectral Method of Measurement of Concentrations of Components in Helium-Neon
Gas Mixture in Sealed Tube"

Minsk, Zhurnal Prikladnoy Spektroskopii, No 4, Apr 71, pp 614-618.

Abstract: A method is described for measuring the concentrations of helium and neon in a sealed tube in the range of change of total pressure of the mixture corrected to room temperature of 0.4-3 torr with ratios of helium to neon concentration of 3-10. The accuracy of the method and conditions of its application are studied. Some results of measurements of concentrations of helium and neon in sealed tubes are presented. The method is based on selection of several lines of neon and helium and determination of combinations of intensities of various lines such that the intensity functions are monotonic, while the distance between them in the graph scale selected is significantly greater than the accuracy of measurement.

1/1

USSR

ABDULLAYEV, Kh. Sh., and TRUKHANOV, G. Ya.

"Neutron Relaxation in Matter"

Baku, Izvestiya Akademii Nauk Azerbaydzhanskoy SSR—Seriya Fiziko-tehnicheskikh i Matematicheskikh Nauk, No 1, 1973, pp 137-141

Abstract: This theoretical paper examines the basis for the study of neutron relaxation in matter. This usually reduces to the determination of various relaxation lengths, which are, in turn, determined only by the characteristics of the medium rather than the type of neutron source. From an examination of these lengths, information regarding the dispersion law of the medium is afforded and theoretical models of the dispersion nuclei are checked. The relaxation lengths are here defined as reciprocals of the discrete eigenvalues of problems arising from the separation of variables in the kinetic equation. These problems, in turn, involve eigenvalues for various integral equations whose kernels are second derivatives of the dispersion cross section. Approximation methods for calculating these lengths are given and their results evaluated.

1/1